



# **Biological Summary of Islands within Maine Coastal Islands National Wildlife Refuge**

**February 2013**



## Maine Coastal Islands NWR Island Summary

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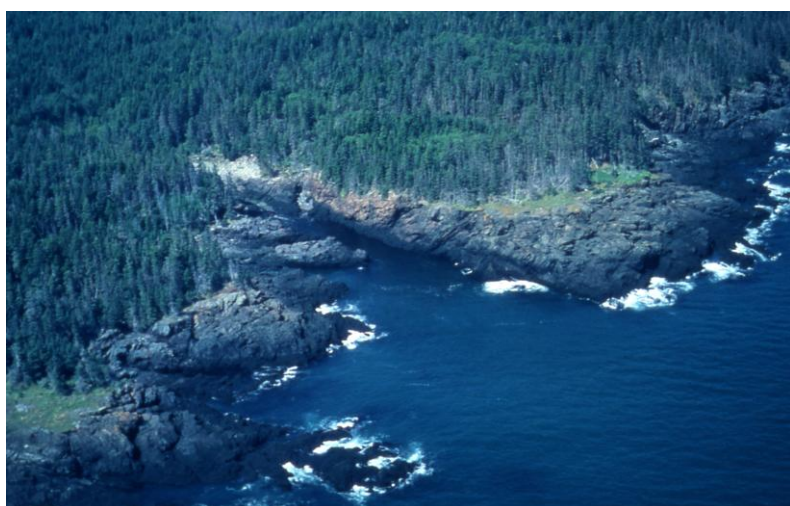
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**Island Visitation:** Cross, Scotch, Halifax, Bois Bubert and Bar Islands are open to visitors all year. Seal and Duck Islands are closed at all times. Refuge islands supporting nesting gulls, double crested cormorants, and common eiders are closed April 1 - July 31. Refuge islands supporting nesting terns, alcids, Leach's storm-petrels, and great cormorants are closed April 1 - August 31. Islands with active bald eagle nests are closed from February 15 - August 31. Historic eagle nesting islands are closed from February 15 - May 15, and are then open to public use if eagles have not re-established nesting on the island.

**Data sources:** The biological data contained in this document represent the efforts of many individuals and agencies, particularly Maine Department of Inland Fisheries and Wildlife, National Audubon Society, and U.S. Fish and Wildlife Service. Where possible, credit for a specific study has been acknowledged. Complete references may be obtained from the Maine Coastal Islands NWR office in Milbridge, Maine.

## Cross Island



Location: Cutler, Washington County

Date of Acquisition: 1980

CIR #	79-347
Total Acreage	1,654
Saltmarsh	15
Intertidal	267.2

Habitat:

- A large forested island dominated by red spruce and balsam fir. There are a few small stands of yellow birch, paper birch, and alder. There is a large salt marsh between the main portion of the island and western head. Several grassy openings with sedges, cranberry, and blueberry are found along the shore. Associated wetlands support eelgrass and other submerged aquatics, saltmarsh and salt meadow cordgrass, and sea lavender. The shoreline typifies the bold rocky coastline of Maine, and landing sites are limited to a few protected coves.
- cover-type map available

Species of Concern:

- History of nesting eagles
- livid sedge (*Carex livida*): State Threatened
- Coast blite goosefoot (*Chenopodium rubrum*): State Threatened
- rare community type: Maritime Slope Bog

Eagle Nesting History: (territories 121 & 576)

- site first located in 1981, although it appeared to be an older nest structure
- site occupied in 1981 & 1982, vacant next four years
- site continuously occupied 1987 - 1994
- 2000 survey indicated the nest had fallen and eagles have not nested on the island from 2000-2007
- 2008 new nest (576A) discovered along shore of Western Head. Pair produced 2 chicks in 2009 and 1 chick in 2010.

Surveys Completed:

- EA completed for Cross Island - 1978
- Habitat analysis of Cross Island using SPOT imagery Podolsky & Labaree 1990
- Deer pellet count - 1991
- Study to examine potential effects of aquaculture site development adjacent to the island (Famous 1991)
- Neotropical landbird monitoring program - 1993- Famous
- Botanical survey (focusing on wetland habitats) - Mittelhauser & Morrison 2000
- Aerial monitoring by MDIFW for eagle nesting
- Passerine Banding Station and Acoustic Monitoring - Fall 2012
- Salamander genetic study - fall 2012

Management Concerns / Issues:

- Cook Aquaculture operates a 35 acre Atlantic salmon aquaculture facility adjacent to the island. The lease for this facility expires in 2017.
- Outward Bound 19 acre inholding and summer program
- Cabott family owns 20 acre inholding
- Native American (Passamaquoddy Tribe) interest in locating petroglyphs
- Island has been proposed for consideration as Wilderness Area
- The island is open to public access year round (day use only)

Hunting - No hunting is allowed on Cross Island

USFWS Owned Structures:

- Refuge owns a cabin on northwest head



## Scotch Island



Location: Cutler, Washington County

Date of Acquisition: 1980

CIR #	79-350
Total Acreage	10 forested
Intertidal	16.1

Habitat:

- Forested island with dense stands of red and white spruce, balsam fir, and yellow and paper birch. The island is immediately adjacent to the northeast corner of Cross Island.

Surveys Completed:

Seabird survey completed in 2006 - no nests were located

Invasive Species:

Survey conducted in 2007 - none found

Management Concerns: island is open year round to day use

Hunting -no hunting allowed

## Outer Double Head Shot Island



Location: Cutler, Washington County

Date of Acquisition: 1980

CIR #	79-352
Total Acreage	14 (70% forested)
Intertidal	13.1

## Habitat:

- Northern half of the island is dominated by red spruce / balsam fir, with the southern half of the island dominated by mixed grasses

## Species of Concern:

- island supports nesting of Common Eider, Great Black-Backed Gulls, Herring Gulls, Leach's Storm Petrels, and Black Guillemots

## Surveys Completed:

- Botanical inventory 79-80 and 82-84, Lewis

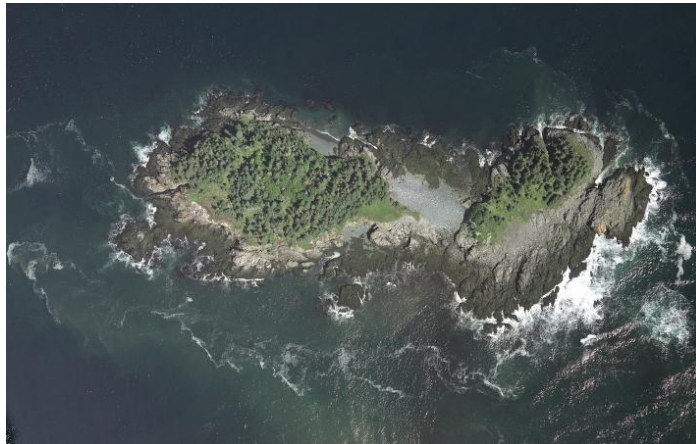
Year	COEI	GBBG	HERG	BLGU
1991	0	10	30	50 ad
1995	100	23	25	140 ad

## Management Concerns:

- Island is closed during the seabird nesting season: April 1 - August 31

Hunting - no hunting allowed

## Inner Double Head Shot



Location: Cutler, Washington County

Date of Acquisition: 1980

CIR #	79-351
Total Acreage	8 (80% forested)
Intertidal	8.9

## Habitat:

- Vegetation on the northern half of the island is dominated by red spruce / balsam fir, with the southern half dominated by mixed grasses

## Species of Concern:

- Eagle nesting island
- island supports nesting of Black Guillemot, Herring Gulls, and Leach's Storm Petrel (all at low levels)
- Islands used by harbor seals for pupping and haul-out

Eagle Nesting History: (Originally labeled territory 121 when a single pair of eagles also maintained nests on Cross and Mink Is. In 2004 territory was designated 427 when two nests sites were active)

- nest located in 1982, but was not occupied until 1985
- nest and nest tree fell by 1986 nesting season, site unused next four years
- new nest built in 2000, but fell by 2001 season
- territory unoccupied in 2002 and 2003
- produced one eaglet in 2004 and 2005, active in 2006 but did not produce any young. Pair was active in 2007, but outcome is unknown.
- pair was active in 2008 (unknown outcome) and produced 2 chicks in 2009 and 2010

Surveys Completed:

- Aerial monitoring by MDIFW for eagle nesting is now limited due to funding constraints
- Botanical inventory 79-80 and 82-84, Lewis
- Seabird survey completed in 2006, no nests found but 43 BLGU observed next to the island
- Initiated Migration Monitoring Network Study in 2010. Deployed acoustic equipment to monitor birds and bats. Also erected receiving station to track transmitters placed on passerines in Nova Scotia

Invasive Species: Survey completed in 2006 - none found

Management Concerns:

- Island is closed during the bald eagle and seabird nesting season: February 15 - August 31

Hunting - no hunting allowed

## Mink Island



Location: Cutler, Washington County

Date of Acquisition: 1980

CIR #	79-345
Total Acreage	11 forested
Intertidal	6.9

### Habitat:

- Island vegetation is island dominated by red spruce and balsam fir

### Species of Concern:

- nesting bald eagles

### Eagle Nesting History: (territory 121, birds also nested on Cross Islands and Outer double Head Shot Islands)

- site occupied 1995 - 1999, vacant in 2000
- site active in 2001 (2 eaglets), 2002 (1 eaglet), 2003, and 2004 (2 eaglets)
- site occupied by non-breeding pair in 2005
- site active in 2006 and 2007 - did not produce any young in 2006 and outcome was unknown in 2007
- Nest was active in 2008, only one adult was observed in 2009, and the site was unoccupied in 2010

### Surveys Completed:

- Aerial monitoring by MDIFW for eagle nesting

### Management Concerns:

- Island closed to visitation during eagle nesting season: February 15 - August 31

Hunting - no hunting allowed

## Old Man Island



Location: Cutler, Washington County

Date of Acquisition: 1980

CIR #	79-313
Total Acreage	6 non-forested
Intertidal	10.5

Habitat:

- Vegetation on the island is sparse, with a variety of mixed grasses interspersed with rock outcroppings. Steep cliffs and sea stacks are located along the perimeter of the island.

Species of Concern:

- one of six nesting islands in Maine for razorbills
- island supports nesting of Common Eider, Great Black Backed Gulls, Herring Gulls, Double Crested Cormorant, Leach's Storm Petrel, and Black Guillemots
- Of historical note, Old Man Island is reported to be the only island in Maine that supported nesting eiders in the early 1900's when two nests were discovered.

Surveys Completed:

- Botanical inventory 79-80 and 82-84, Lewis
- Status of Razorbill in the Gulf of Maine - Podolsky 1987

Year	COEI	DCCO	GBBG	HERG	LHSP	BLGU	RAZO
1991	100	306	29	26	50	55 ad	140 ad
1994		302					80 ad
1995	100		164	126	400	125 ad	90 ad
1998							150 ad
1999							160 ad
2001							150 ad
2004		65+					115 ad
2006							240 ad
2008		52	98	195	Photo count		

Management Concerns:

- need accurate means of surveying the island without creating significant disturbance to the nesting birds
- Island is closed to public use during the seabird nesting season: April 1-August 31

Hunting - no hunting allowed

## Libby Island



Location: Machiasport, Washington County

Date of Acquisition: 11/99

CIR #	79-360
Total Acreage	43 non-forested
Intertidal	53.2

### Habitat:

- large bedrock out-croppings along western and southern shore
- The island contains a variety of habitats including: dense stands of shrubs (Virginia rose, meadowsweet, and black chokeberry), American cranberry, and creeping juniper. Beach strand community, dwarf ericaceous shrubs and grasses dominate the upland. Two wetland communities dominated by northern blue flag, and the island also has two sedge meadows

### Species of Concern:

- *Carex recta* (salt marsh sedge): State Endangered (S1, G4)
- *Primula laurentiana* (Bird's eye primrose) State Special Concern (S2, G5)
- *Achillea millefolium* (northern yarrow) State Special Concern (S1, G5)
- rare community type: Maritime slope bog
- island supports nesting of Common Eider, Great Black Backed Gulls, Herring Gulls, and Black Guillemot
- historic tern nesting island

Surveys Completed:

- Botanical inventories conducted:  
     Alan Lewis 1979-1980 & 1982-1984  
     Bochan & DiGirolamo 1999

Year	COEI	GBBG	HERG	BLGU	CAGO
1991 & 92	0	0	0	5	
1999		Some nesting			
2001	10	2	40	10 ad	
2004 Nest count	6	93 total gull nests			
2004 water count	70 ad	9	99	3	32
2007	13	47	110	75 ad	2 pr
2008		37	283	Photo count	

Invasive Species- Canada Thistle

Management Concerns:

- 20 acre aquaculture operation 370' north of island (lease issued 7/04).  
     Facility did not raise fish between 2007-09
- coordinate with US Coast Guard regarding lighthouse
- Maintain historic structures
- Island is closed to public use during the seabird nesting season: April 1 - August 31

USFWS Owned Structures:

- Boardwalk
- Libby Island light tower, fog signal building, and boat ramp (Nat. Register of Historic Places)
- New roof to be installed on generator building in 2011
- Boat ramp has been destroyed

Hunting - Waterfowl hunting permitted

## Eastern Brothers



(Eastern Brothers is at bottom of photo)

Location: Jonesport, Washington County Date of Acquisition: 5/16/95

CIR #	79-573
Total Acreage	17 non-forested
Intertidal	14.2

## Habitat:

- Vegetation on the island is dominated by grasses, raspberries and other herbaceous species where sheep grazing was heavy. Crowberry, ericaceous species, Arctic blue flag and grasses dominate on steeper slopes. The perimeter of the island is surrounded by rock ledges of varying height and associated 60-70' rock cliffs.
- Diversity of flora: 177 species, varieties, or hybrids have been identified

## Species of Concern:

- *Lomatogonium rotatum* (marsh felwort) - state threatened
- *Montia Fontana* (Blinks) - special concern
- *Primula laurentiana* (Brid's-eye primrose)
- extensive Arctic blue flag population (20,000 individuals)
- *Arethusa bulbosa* (dragon's mouth orchid) rare species
- *Sagina nodosa* (pearl-wort) rare species
- rare community type: Maritime slope bog
- historic peregrine nesting site

- Refuge initiated a seabird restoration effort on the island in 2007. Puffin, razorbill, and tern decoys are annually placed on the island.

Surveys Completed:

- Botanical Inventory: Famous & Spencer-Famous 1999
- Rare plant monitoring effort in 2005 (Mittelhauser)
- Adaptive Management Study 2008-2010. We are looking at the affects of sheep grazing on island vegetation.

Year	COEI	GBBG	HERG	BLGU	LHSP	COTE
1983	0	50 ad	70 ad	100 ad		
1991	40	600		12 ad		
1995		1,131	0	144 ad	8	
2005	11	45	93	176 ad		
2007*	8	0	0	250-300prs	34	1
2008		0	0	480 ad	30	0
2009		0	0	410 ad	0	
2010		0	0	480 ad		1
2011		0	0	380 ad		
2012	0	0	0	340 ad	0	1 ad

\* Seabird restoration effort initiated in 2007. Refuge does not allow any gulls to nest on the island, and used social attraction equipment to attract terns and alcids

Management Concerns:

- long history of sheep grazing (125+ years) - removed in the mid 1990's
- Sheep (25 animals) returned to island in 2008
- Mink and raven predation remain a significant concern on the island
- Island has been proposed for consideration as Wilderness Area
- Island is closed to public use during the seabird nesting season: April 1 - August 31.

Refuge cabin on MDIFW owned Western Brothers

Hunting - Open to waterfowl hunting

## Halifax Island



Location: Jonesport, Washington County Date of Acquisition: 6/22/95

CIR #	79-570
Total Acreage	75 (45 acres wetland, 30 acres shrubs)
Intertidal	47

## Habitat:

Vegetation is comprised of 45 acres of peatland communities, and 30 acres of ericaceous shrub-dominated communities (huckleberry, sheep laurel, Rhodora, blueberries, crowberries, and small trees), lichen covered rock outcrops, sparsely vegetated nearshore headlands and cliffs, and beach strand. Several extremely fragile plant communities exist (acidic fen, plateau bog lawn, dwarf shrub bog, moss lawn bog, and acidic shoreline outcrop)

- diversity of flora: 250 species, varieties, or hybrids have been identified
- past history of grazing

## Species of Concern:

- Maritime Slope Bog community - very rare community type
- Northern Yarrow (*Achillea millefolium* var. *borealis*) - State Special Concern
- Peal-wort (*Sagina nodosa*)
- Dragon's mouth orchid (*Arethusa bulbosa*)
- Nationally significant population of whimbrels stop during their migration to forage on crowberries

Surveys Completed:

- Botanical Inventory: Famous & Spencer-Famous 1999
- population estimates (1991- 1995): No seabirds were observed nesting

Year	COEI	GBBG	HERG	BLGU
2005	2	11	57	4 ad
2008		12	8	Photo count
2011*	0	0	0	0

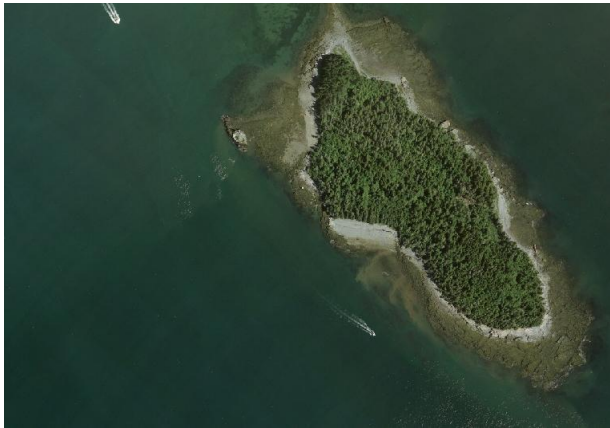
\* Refuge found otter den on island in 2011

Management Concerns:

- Camp site for MITA - See report on status of vegetation resulting from visitor use (Linda's office)
- Western end of island is open year round
- Majority of island is closed to year round to public access (signs) due to concerns for fragile plant communities - no enforcement of closure
- Island has been proposed for consideration as Wilderness Area

Hunting- open to waterfowl hunting

## Schoppee Island



Location: Roque Bluffs, Washington County



Date of Acquisition: 11/00

CIR #	79-566
Total Acreage	16.5 forested
Intertidal	16.1

Habitat: The Island is dominated by red spruce. There is evidence of wind-throw over the years, resulting in a patchwork appearance created by a diversity of age classes and tree height. The island also supports a variety of hardwood species including: white & yellow birch, mountain ash, and alder

## Species of Concern:

- historic eagle nesting island

## Eagle Nesting History: (territory 111)

- site occupied in 1968 & 1969
- unknown status 1970 - 1979
- site occupied in 1980, but has been vacant since that time

## Surveys Completed:

- Seabird survey completed in 2006 - no nests were found

## Invasive Plants:

- survey completed in 2006
- Bittersweet nightshade and rugosa rose documented on island

Management Concerns:

- Accessible at low tide to Roque Bluffs State Park
- Refuge has documented illegal camping on the island
- Island closed to public use February 15 - August 31 if eagles are nesting, island is open after May 15 if they are not present

Hunting - island is open to waterfowl hunting

## Inner Sand



Location: Addison, Washington County

Date of Acquisition: 9/26/99

CIR #	79-614
Total Acreage	17.8 (15 acres forested)
Intertidal	9

## Habitat:

- Island is dominated by red spruce and balsam fir (15 acres) with extensive under-story development. Southern end of island supports a variety grasses, shrubs, wildflowers, and a variety of berry producing species, including blueberry, cranberry, and raspberry.

## Species of Concern:

- Common Eider, Great Black Backed Gull and Herring Gulls have all nested on the island
- 150 harbor seals (plus pups) observed on ledges in 2005

## Surveys Completed:

Year	COEI	GBBG	HERG
1989	200	5	20
1995		0	0
2005	0	0	0

Over 1,000 gulls were observed on the island in the mid 1970's, but none were observed during aerial surveys & photos in 1995

- Botanical Inventory completed in 2006 (Mittelhauser 2007)

Invasive Species:

- Invasive survey in 2006 (garden valerian, Canada thistle, and bittersweet nightshade found)
- Garden valerian population reduced by 50% from 2006 (all stems removed in both 2006 and 2007). Population increased in 2009 and 2010 due to increased precipitation during the growing season. Nightshade population is <10 stems.

Management Concerns:

- evidence of a mammal living on the island (2005)
- Island is closed to public use during the seabird nesting season: April 1 -July 31.

Hunting - open to waterfowl hunting

## Nash Island



Location: Addison, Washington County

Date of Acquisition: 1/5/81

CIR #	79-627
Total Acreage	16.7 (USFWS owns 5) non-forested
Intertidal	17.8

## Habitat:

- treeless island dominated by grasses and ericaceous shrubs

## Species of Concern:

- island supports nesting of Common Eider, Great Black Backed Gulls, and Black Guillemot
- Roseate, Common, and Arctic terns all nested on the adjacent Big Nash Island when the PMI colony abandoned in the early 80's due to nesting gulls. Only a few Common Terns continue to nest on Nash.

## Surveys Completed:

Year	COTE	ARTE	COEI	GBBG	HERG
2005*	0	0	0	20	80
2006			18	118	165
2007	0	0	23	76	227
2012	5	0			

\*The decline nesting seabirds observed in 2005 may have been due to significant storms at the end of May, and illegal shooting on the island. We later observed small number of eiders nesting on Nash.

Invasive Plants:

- Survey completed in 2006
- Canada thistle and bittersweet nightshade have been found on the island

Management Concerns:

- historic light house structures (Friends of Nash Island Light)
- Maine Coast Heritage Trust owns half of island
- sheep graze on both Big Nash and Nash Islands
- GBBG were shot on the island in 2005 (illegally)
- Island is closed to public use during the seabird nesting season: April 1 - August 31

USFWS Owned Structures:

- USCG owns Nash Island light (Nat. Register of Historic Places)

Hunting - Island is not open to hunting

## Jordan's Delight



Location: Harrington, Washington County

Date of Acquisition: 5/07

CIR #	79-922
Total Acreage	26.7
Intertidal	18.4

Habitat:

The Island has scattered cobble beaches on the northern end, flat or sloping meadows, granite outcroppings, and steep cliffs which are common on the southwestern shoreline. Vegetation is a mix of dense grasses and forbs with occasional pockets of white spruce, red pine, and mountain ash.

Species of Concern:

- island supports nesting of Common Eider, Leach's Storm-Petrel, Double Crested Cormorants, Great Black-Backed Gulls, and Black Guillemots
- Harlequin Ducks winter along the south-eastern shore of the island
- Peregrine Falcons frequently hunt from the cliffs on the western shore of the island

## Surveys Completed:

Year	COEI	GBBG	HERG	DCCO	BLGU	LHSP
1995		228	420	93	234 ad	200
1998	350	160	27	128		
2008		87	117	Photo count		

- A botanical inventory was conducted in 2003
- Automated telemetry receiving station was placed on the island in 2012

Invasive Species - Canada thistle, field-sow thistle, spiny leaved sow thistle, bittersweet nightshade

## Management Concerns:

- A University of Maine graduate student conducted research on Jordan's Delight in 2008-099 (Parsons 2010). They looked at various techniques we could use to monitor rates of disturbance and nest site attendance in seabirds.
- Maine Coast Heritage Trust holds a conservation easement on 2 acres on the southern end of the island
- Small cabin and storage building are located on the easement property
- Island is closed to the public during the seabird nesting season: April 1 - Aug 31.

Hunting - island is open to waterfowl hunting

## Bois Bubert



Location: Milbridge, Washington County

CIR #	79-824
Total Acreage	1,500 (USFWS owns 1,321) predominantly forested
Intertidal	53.2

Date of Acquisition: initial acquisition in 4/79 with numerous other acquisitions through 7/97

Habitat:

- Large forested island, dominated by red spruce, balsam fir, tamarack, and associated hardwoods. Two freshwater wetlands (ponds) are also located on the island, as well as an extensive area of early successional habitat. The island provides extensive inter-tidal habitat. The island's jack pine woodlands represents two of eight known stands in Maine, and are considered rare community types by Maine Natural Areas Program.
- pond at the center of the island supports extensive lily population
- a covertime map is available (2002)

Species of Concern:

- active bald eagle nest
- island provides significant stopover area for waterfowl during fall migration, and no hunting is allowed for migratory birds
- *Agalinis neoscotica* (Nova Scotia false-foxglove) State Threatened (S1, G2?)
- *Primula laurentia* (bird's-eye primrose) special concern (S2 / G5)

Eagle Nesting History: (territory 267)

- site occupied 1996 - 1999, vacant in 2000
- site active in 2001 (1 eaglet), 2002 (2 eaglets), 2003, 2004, 2005 (no eaglets). Site was active in 2006 and produced one eaglet. In 2007 the pair produced 2 eaglets.
- Nest was unoccupied in 2008, but active in 2009 (unknown outcome). Pair produced 1 chick in 2010

Surveys Completed:

- The Birds and Plants of Petit Manan NWR - Widrig 1996
- waterfowl banding - 1996
- spider inventory - Jennings 2001
- Rare plant monitoring - Mittelhauser 2004
- Aerial monitoring by MDIFW for eagle nesting
- Salamander genetic study - Fall 2012

Invasive Species:

- Survey conducted in 2007

Management Concerns:

- Island has been proposed for consideration as Wilderness Area
- Camping is permitted at Seal Cove (as part of Maine Island Trail)
- portion of island is privately owned and contains several seasonal homes
- Majority of island is open year round, with area on southern end of island closed year round to protect nesting and roosting birds.

USFWS Owned Structures:

- Cabin on western portion of island

Hunting - Island is open to white tailed deer hunting

## Petit Manan Island



Location: Steuben, Washington County

Date of Acquisition: 1974

CIR #	79-933
Total Acreage	10
Intertidal	5.9

### Habitat:

- vegetation on the north and east side of the island contains a variety of grasses, Angelica, raspberry, asters, meadowrue, blueberry, and beachpea. Southwestern portion of the island is dominated by a dense stand of raspberry (which is rapidly expanding). Canada bluejoint occupies a large portion of the western half of the island. The invasive species dodder established a strong foothold on the northern end of the island in 2000. Extensive vegetation management has occurred utilizing a variety of techniques (i.e. burning, herbicide, mowing)

### Species of Concern:

- Roseate Tern: Federal & State Endangered
- Arctic Tern, Razorbill, and Atlantic Puffin: State threatened
- Laughing Gull: State Special Concern
- Common Tern: State Special Concern
- Montia fontana (Blinks) special concern (S2, G5)
- Malaxis monophyllos (white adder's mouth) endangered (S1 / G4Q)

This island has historically been one of the most important colonial seabird nesting islands in the Gulf of Maine. Significant numbers of nesting terns had historically nested on PMI, including 1,500 nesting pairs observed in 1971. However, when human presence on the island ended with automation of the light station in 1972,

the numbers of nesting gulls gradually increased to the point they excluded all nesting terns by 1983. The Service initiated gull control in 1984. Within a week of the DRC 1339 application, the common, Arctic, and roseate terns had returned to Petit Manan, where they have continued to nest every year since. In 2004 we documented the first successful razorbill nesting on the island. Leach's Storm-Petrel, Black Guillemots, Laughing Gulls, and Eiders also nest on PMI.

Surveys & Research Completed:

- Annual seabird surveys conducted (see file)
- Adaptive Management Study 2008-2010, to document the vegetation's response to burning and mowing
- The Birds and Plants of Petit Manan NWR - Widrig 1996
- Arctic Tern metapopulation study (1999 - present) - Devlin
- Atlantic Puffin metapopulation study (1999 - present) Breton
- spider survey - 2000
- Botanical inventory completed in 2001 (Mittelhauser)
- Banding molting Common Eider 2002-2008.
- Assessing physical condition of ARTE and COTE (2005- 2007) Agius
- Puffin foraging ecology study (2008-09) - Spencer
- Fall passerine and shorebird banding (2009)
- Intertidal monitoring initiated in 2009 (partner with Acadia NP)
- Bat acoustic monitoring in 2009-12
- Seabird Foraging and Behavior Study using Nanotags and Automated Receiving station - summer 2012
- Salamander genetic study - fall 2012

Most recent data:

Year	COEI	COTE	ARTE	ROST	LAGU	ATPU	RAZO	BLGU
2007	49	1,038	1,343	5	1,350	55	1	50
2008	105	1,255	1,307	4	1,363	93	3	50
2009	101	1,268	1,374	44	1,171	104	4	69
2010*	53	912	688	1	270	88	3	
2011	35	1,106	544	0	735	67	5	52
2012	67	1,168	758	2	811	66	4	76

\* colony experience significant decline due to extensive peregrine predation at the beginning of the nesting season.

Management Concerns:

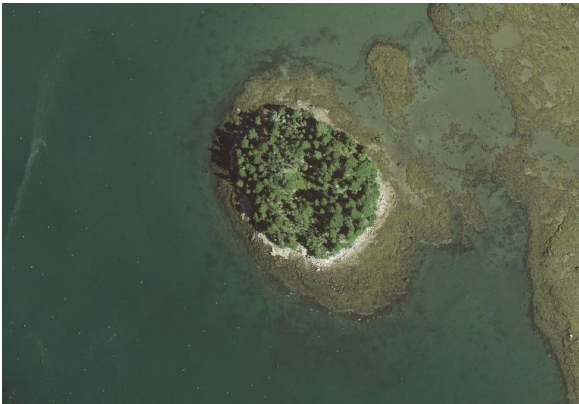
- Island is closed to public use during the seabird nesting season: April 1 - August 31
- coordinate with US Coast Guard regarding lighthouse
- Maintain historic structures
- potential disturbance from ecotourism boats & aircraft
- The Service continued varying levels of gull control (i.e. poisoning) on Petit Manan and Green Islands between 1984-1990 and 2002.
- Researchers and students from the College of the Atlantic conducted researched and monitored the colony on PMI between 1984 - 1998. In 1999, the USFWS assumed full management authority on PMI.
- Maintain solar power equipment
- Refuge staff actively manages vegetation through burning and mowing to enhance nesting habitat for terns.
- Laughing gull population continues to increase rapidly. Gulls are preying on tern eggs and chicks, stealing food from terns, and occupying potential tern nesting habitat. In 2008, Refuge began destroying all laughing gull nests on the island and also began a lethal control effort to reduce the gull population to 500 pairs.

USFWS Owned Structures:

- Lighthouse, Lighthouse keepers home, rain shed, generator building, and fog signal building (Nat. Register of Historic Places)
- Boat house, boat ramp, and boardwalk USFWS owned.
- Boat ramp was rebuilt in 2008
- Generator Building (2010) repointed masonry and fabricated roof tierods for installation in 2011
- Fog signal building (2010) cupola built and painted
- Pantry and livingroom, renovated in 2011
- new flooring in entryway, hallway, and pantry - 2011
- new roofs for Generator, Fog signal building, and building attached to lighthouse in 2011
- Lighthouse tower cap sealed in 2011

Hunting - Island is open to waterfowl hunting

## Sally Island



Location: Steuben, Washington County

Date of Acquisition: 8/15/96

CIR #	79-836
Total Acreage	1 forested
Intertidal	Included with Petit Manan Point

Habitat: Heavily wooded island surrounded by extensive inter-tidal habitat that connects the island to Petit Manan Point at low tide. Island is dominated by red spruce and several large white pines.

## Eagle Nesting History: (territory 144)

- site occupied in 1985, nest fell in 1986 and site was unoccupied in '87 & '88
- nest was rebuilt in the same tree in 1989, but unoccupied in 1990 - 1992
- site occupied in 1993 by one adult, unoccupied in 1994
- site occupied 1995 - 2000 (only one adult observed in 2000)
- nest deteriorated, and pair has moved to adjacent Sheep Island (01-04)
- nest rebuilt & occupied in 2005 - breeding effort failed
- site active in 2006 - produced one eaglet
- nest and nest tree fell in April 2007 (nest was active at the time)
- new nest constructed in 2008, produce 1 chick in 2008 & 09. Produced at least 1 chick in 2010

## Surveys Completed:

- Aerial monitoring by MDIFW for eagle nesting

Invasive Species:

Survey conducted in 2007

Management Concerns:

- Accessible at low tide to Petit Manan Point (Birch Point Trail)
- Island is closed to public use during the eagle nesting season: February 15 - August 31. Island will be opened to public use on May 15, if eagles do not nest.

Hunting - Island is open to waterfowl hunting

### Sheep Island



Location: Steuben, Washington County

Date of Acquisition: 4/2010

CIR #	79-835
Total Acreage	7.9 forested
Intertidal	

Habitat: Island is dominated by red spruce.

Eagle Nesting History: (territory 144)

- Territory first documented in 2001
- Have produced chicks in 2001, 02, 08, 09, and 2010. Produced 3 chicks in 2010

Surveys Completed:

- Aerial monitoring by MDIFW for eagle nesting

Management Concerns:

- Island is closed to public use during the eagle nesting season: February 15 - August 31. Island will be opened to public use on May 15, if eagles do not nest.

Hunting - Island is closed to hunting

## Abbott Island



Location: Steuben, Washington County

Date of Acquisition: 9/18/96

CIR #	79-837
Total Acreage	1 forested
Intertidal	Included with Petit Manan Point

## Habitat:

- This small island supports a variety of habitats and a diversity of plant species including indian cucumber, trillium, clintonia, hobblebush, striped maple, and various orchids all of which were not located on the mainland portion of the refuge. Island is surrounded by extensive mudflats.

## Surveys Completed:

- The Birds and Plants of Petit Manan NWR - Widrig 1996
- Seabird surveys completed in 2006 - no nests located

## Management Concerns:

- Island is open year round for day use
- Extensive residential development on north side of Carrying Place Cove, including several violations of shoreland zoning (2004)

Hunting - Island is open to waterfowl hunting

## Eastern Island



Location: Steuben, Washington County

Date of Acquisition: 12/08

CIR #	79-843
Total Acreage	3
Intertidal	10.3

## Habitat:

- habitat on the island is dominated by mixed grasses and raspberry. There is extensive ledge habitat along the perimeter of the island

## Species of Concern:

- Island supports nesting double crested cormorants, great black-backed and herring gulls
- Botanical Inventory conducted in 2009

## Surveys Completed:

- Botanical inventory was completed in 2009 (Mittelhauser 2010)

Year	COEI	GBBG	HERG	DCCO
2008		82	47	178

## Invasives:

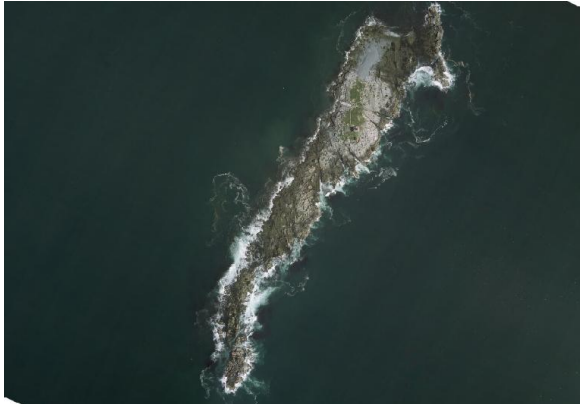
- Bittersweet nightshade, controlled in 2009-10. More than 1,300 stems removed

## Management Concerns:

- Maintain island closure during nesting season: April 1 - July 31

Hunting - Island is closed to hunting

## Egg Rock



Location: Winter Harbor

Date of Acquisition: 11/99

CIR #	59-301
Total Acreage	12 non-forested
Intertidal	26.1

Habitat:

- significant portion of island is dominated by rock out-croppings, with the remainder of the island dominated by mixed grasses, Angelica, hinge-bindweed, ragweed and goldenrod. The shoreline is predominantly granite ledge, with a cobble beach at the northern tip of the islands

Species of Concern:

- island supports nesting of Common Eider, Great Black-Backed Gulls, Herring Gulls, and Black Guillemot
- Roseate, Common, and Arctic terns all nested on the island when the PMI colony abandoned in the early 80's due to nesting gulls. Terns returned to nest on PMI once the gull colony was removed in 1984.

Invasive Species:

- Survey completed in 2004
- bull thistle, spiny leaved sow thistle, and rugosa rose

## Surveys Completed:

- Botanical inventory completed in 2004 (Mittelhauser)

Year	terns	COEI	GBBG	HERG	BLGU	LAGU
1981	300					175
1984	325 inc 3 ROST					
1994 & 95		34	65		30 ad	
1999		< 5	< 20	200+		
2000			< 10	150+		
2001		20	12	414		
2003		25	15	608		
2006		6	439 gull nests			
2008	0	6	22	647		0
2012		17	17	729		

## Management Concerns:

- maintain island closure during the seabird nesting season: April 1-August 31
- coordinate with US Coast Guard regarding lighthouse
- unauthorized use of helicopter pad
- Maintain historic structures
- Need to coordinate with numerous ecotourism boats that interpret the island throughout the summer

## USFWS Owned Structures:

- Egg Rock light/ dwelling, fog signal building, boat ramp, and seawall (Nat. Register of Historic Places)
- Boardwalk
- Refuge stained roof of lighthouse in 2009, and started new roof on fog signal building. Boat ramp is destroyed.
- Painted generator building in 2012

Hunting - Island is open to waterfowl hunting

## South Twinnie Island



Location: Bar Harbor, Hancock County

Date of Acquisition: 12/03

CIR #	59-161
Total Acreage	3.3 forested
Intertidal	22.6

### Habitat:

- Forested island dominated by spruce/fir forest, with several white pines, and a mixed hardwood stand

### Species of Concern:

- bald eagle nesting island

### Surveys Completed:

- Aerial monitoring by MDIFW for eagle nesting

### Eagle Nesting History: (territory 28)

- nest occupied in 2002, no eaglets produced
- nest active in 2003 and 2004
- produced one eaglet in 2005 (second injured eaglet recovered)
- site occupied in 2006 - no young produced
- Pair produced 2 chicks in 2007, and 1 chick in 2008 & 09. Nest was active in 2010, but no chicks were produced

### Management Concerns:

- Island is closed to public visitation during the eagle nesting season:  
February 15 - August 31

Hunting - Island is open to waterfowl hunting

North Twinnie Island



Location: Bar Harbor, Hancock County

Date of Acquisition: 2011

CIR #	59-160
Total Acreage	3.6 forested
Intertidal	

Habitat:

- Forested island dominated by spruce/fir forest, with several white pines, and a mixed hardwood stand (including red oak)

Management Concerns:

- There is a cabin located on the west side of the island.
- Metal roof installed on cabin - fall 2012
- The island is open year-round

Hunting - the island is closed to hunting

## Ship Island



Location: Tremont, Hancock County

Date of Acquisition: 12/27/94

CIR #	59-341
Total Acreage	11.2 non-forested
Intertidal	11.9

## Habitat:

Majority of island is dominated by grasses and ericaceous shrubs, including rugosa rose, raspberry, elder, and Angelica. A small stand of black cherry is located next to the seasonal research camp. Western shore of island consists of a long sandy beach, with remainder of island surrounded by cobble. Connected to Trumpet Island by an inter-tidal bar

## Species of Concern:

Historically Ship Island supported over 300 Common Tern nests, while an additional 500 pairs nested on Trumpet Island. However, by the 1930's gulls had eliminated all nesting by terns. In 1993, a tern restoration project was initiated through a cooperative agreement with The Nature Conservancy. The Service acquired Ship and Trumpet from TNC in 1994. Gull control continued through 1995. After more than a 50 year absence, terns returned to Ship Island when in 1995 a single pair of Common Terns nested. The colony has continued to grow and in 1999, 558 pairs of Common Terns nested. The colony completely abandoned the island during the 2000 nesting season. During the 2001 season, 261 pairs of terns established nests but abandoned the island after a mink arrived. Despite efforts to trap the mink and maintain the island as predator free, terns did not successfully nest on the island for several years. In 2005, the Refuge terminated the

restoration effort due to excessive predation. In 2010, the Refuge returned to Ship and tried another restoration effort. The colony responded to our management efforts and over 100 pairs nested in 2011 and over 250 pairs nested in 2012. A portion of the island was burned in the fall of 2012 to improve nesting habitat for the terns.

#### Surveys Completed:

- Annual seabird census (see files)
- Spider survey - 2000
- botanical inventory 2005

Year	COTE	GBBG	HERG	DCCO
98	500	0	0	0
99	558	0	0	0
05	3	0	0	0
2010*	41	0	0	0
2011	102	0	0	0
2012	251	0	0	0

\* By the end of the 2010 season, 80 nests were documented on Ship Is

#### Invasive Species:

- Garlic mustard, Canada thistle, rugosa rose, bittersweet nightshade, and garden heliotrope
- Control efforts were initiated in 2006. We have continued to monitor the efficacy of our efforts and to implement additional control efforts.

#### Management Concerns:

- Maintain island closure during nesting season: April 1 - August 31
- Peregrine Falcon, merlin, owl, and mink predation on tern colony
- avian cholera outbreak in 1980 killed 1,700 eiders on Ship, Trumpet, and Bar
- Hundreds of cormorants were killed in the late 80's and early 90's (shot & clubbed to death)
- great horned owl have been removed from the island in 2011 and 2012 (from Trumpet)

Hunting - Island is open to waterfowl hunting

#### USFWS Owned Structures

- Cabin (built in 2012) and 2 tent platforms

## Trumpet Island



Location: Tremont, Hancock County

Date of Acquisition: 12/27/94

CIR #	59-340
Total Acreage	3.2 non-forested
Intertidal	22.5

### Habitat:

- heavily vegetated island with dense stands of raspberry, wild rose, and elder. Vegetated portion of island is surrounded by cobble beach. Island is connected to Ship Island by an inter-tidal bar.

### Species of Concern:

- historic tern nesting colony (500 pairs)
- currently supports nesting eiders, herring and black back gulls, cormorants, and possibly oystercatcher (one of only 4 sites in Maine)

### Invasive Species:

- Narrowleaf bittercress, Canada thistle, rugosa rose, bittersweet nightshade, and garden valerian. Began controlling bittercress in 2009-10

Surveys Completed:

Year	COEI	GBBG	HERG	DCCO
1992	234	50	13	487
1993	112	64		320 ad
1994	200	43	7	263
1995	89			338
1996	110			0
1997	200			
1998	186 (incomplete)			
2003	620	41	24	45
2008	134	41	12	0
2011*	40	37	15	114

\* Signs of mammalian predator found on the island

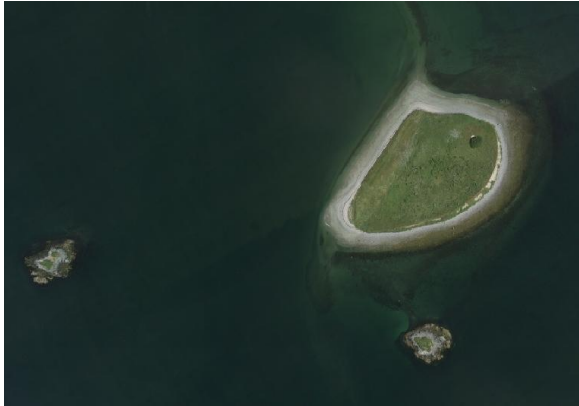
Feasibility Study regarding management of Trumpet Island - Chipman 1997  
 - botanical inventory 2005

Management Concerns:

- Great horned owl removed from the island in 2012
- Potential seabird disturbance issues caused by people harvesting invertebrates from the inter-tidal zone around the island
- avian cholera outbreak in 1980 killed 1,700 eiders on Ship, Trumpet, and Bar
- Hundreds of cormorants were killed in the late 80's and early 90's (shot & clubbed to death)
- Island closed to public use during the seabird nesting season: April 1- July 31

Hunting - Island is open to waterfowl hunting

## East Barge



(East Barge is island in lower right of photo)

Location: Tremont, Hancock County

Date of Acquisition: 12/27/94

CIR #	59-342
Total Acreage	0.5 non-forested
Intertidal	1.8

Habitat: small rocky ledge with little vegetation

### Species of Concern:

- supports nesting cormorants, herring, and black-backed gulls, and low numbers of common eider
- Haul-out ledge for harbor seals

### Invasive Species:

- Survey completed in 2005
- Bittersweet nightshade recorded

Surveys Completed:

Year	COEI	GBBG	HERG	DCCO
1984	3	8	0	85
1994	2	12	1	27
1997		8 unid gull nests		59
1999		20-30	1-2 ad	~10
2003		26 ad	1 ad	12 ad
2008		3	0	0 photo count

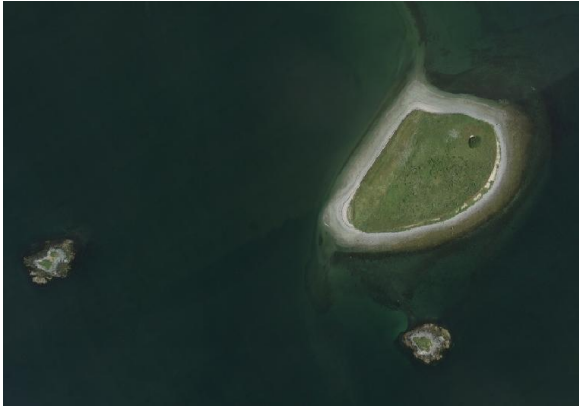
- Harbor seals: 35 observed in 1993 and 75 observed in 2002 (Gilbert)
- botanical inventory 2005

Management Concerns:

- Island closed to public use during the seabird nesting season: April 1- July 31

Hunting - Island is open to waterfowl hunting

West Barge



(West Barge is island at left of photo)

Location: Tremont, Hancock County

Date of Acquisition: 12/27/94

CIR #	59-343
Total Acreage	0.5 non-forested
Intertidal	1.7

Habitat: small rocky ledge with little vegetation

Species of Concern:

- supports nesting cormorants, common eiders, herring, and black-backed gulls
- Harbor seal haul-out

Invasive Species:

- Survey completed in 2005
- Bittersweet nightshade recorded

Surveys Completed:

Year	COEI	GBBG	HERG	DCCO
1984	1	14		5
1994	1	20	0	111
1997		23 unid gull nests		104
1999		~ 30 ad	<10 ad	~100 ad
2003		5 ad	41 ad	109 ad
2008		10	0	106 photo count
2011				150 ad

- Harbor seals: 100 seals observed in 2002 (Gilbert)

- botanical inventory 2005

Management Concerns:

- Island closed to public use during the seabird nesting season: April 1- July 31

Hunting - Island is open to waterfowl hunting

## Bar Island



Location: Tremont, Hancock County

Date of Acquisition: 12/27/94

CIR #	59-244
Total Acreage	17.2 acres owned by USFWS - northern $\frac{1}{2}$ of island privately owned - predominantly non-forested
Intertidal	37.1

## Habitat:

- Southern portion of island is dominated by a grassy meadow with small shrubs and red spruce trees.

## Species of Concern:

- Common Eider, Great Black-Backed Gulls, and Herring Gulls nest on the island

## Surveys Completed:

- botanical inventory 2005

Year	COEI	GBBG	HERG	DCCO
1976	700	300	1000-2000	15
1984	20	1	20	0
2003	0	0	0	0

Invasive Species:

- Purple loosestrife, coltsfoot, European bittercress, Canada thistle, rugosa rose, bittersweet nightshade, field sow-thistle, and garden valerian
- Control efforts were initiated in 2006, and we have annually evaluated the response and continued control efforts as needed.

Management Concerns:

- several seasonal homes are located on privately owned portion of island
- motorized vehicles have been driven on beach
- USFWS portion of island is open to public use year round, unless we document nesting seabirds

Hunting - Island is not open to hunting

## John's Island



Location: Swan's Island, Hancock County

Date of Acquisition: 9/23/98

CIR #	59-483
Total Acreage	43 non-forested
Intertidal	19.3

## Habitat:

- vegetation of island is composed primarily of low grasses and forbs with patches of low woody shrubs (choke cherry, winterberry, red berried elder, and common elder). Raspberry comprises ~ 25 % of the islands vegetation.
- perimeter of island consists primarily of granite ledge, ranging from gradual slope to steep cliff

## Species of Concern:

- Sea - Beach Sedge (*Carex silicea*) - Maine Special Concern (S3 G5)
- one of ten island in Maine with nesting great cormorants
- island supports nesting of Common Eider, Great Black Backed Gulls, Herring Gulls, Black Guillemot, Double Crested Cormorant, and Great Cormorant
- harbor seal pupping area
  - 144 seals observed in 1997 (Gilbert)
  - 169 seals, including 60 pups, were observed in 2002 (Gilbert)

Surveys Completed:

- Botanical survey conducted 1999 & 2000 (Mittelhauser & Morrison 2000)

Year	COEI	GBBG	HERG	BLGU	DCCO	GRCO
1986	400	400	600	300		
95 & 96	1000	234	288	225	158	17
2000	277 ad on water	78	97	250 ad	42	1
2002						0
2003					39	8
2004						0
2005						5
2006						1
2007	60	124 gull nests		75 ad	23	0
2008		79	116	Photo count		

2007 survey crew reported extensive eagle predation on eiders and also observed an otter on the island

Invasive Species:

- Invasive plant survey conducted in 2006
- Bittersweet nightshade, Canada thistle, and spiny-leaved sow thistle , and rugosa rose
- control efforts initiated in 2006, and were evaluated in 2007

Management Concerns:

- Island is closed to public use during the seabird nesting season: April 1 - August 31.
- Island has been proposed for consideration as Wilderness Area

Hunting- Island is open to waterfowl hunting

## Gooseberry Island



Location: Swan's Island, Hancock County      Date of Acquisition: to be acquired in 2013

CIR #	59-398
Total Acreage	5.42 acres
Intertidal	

### Habitat:

Island is treeless and vegetation is dominated by mixed grasses

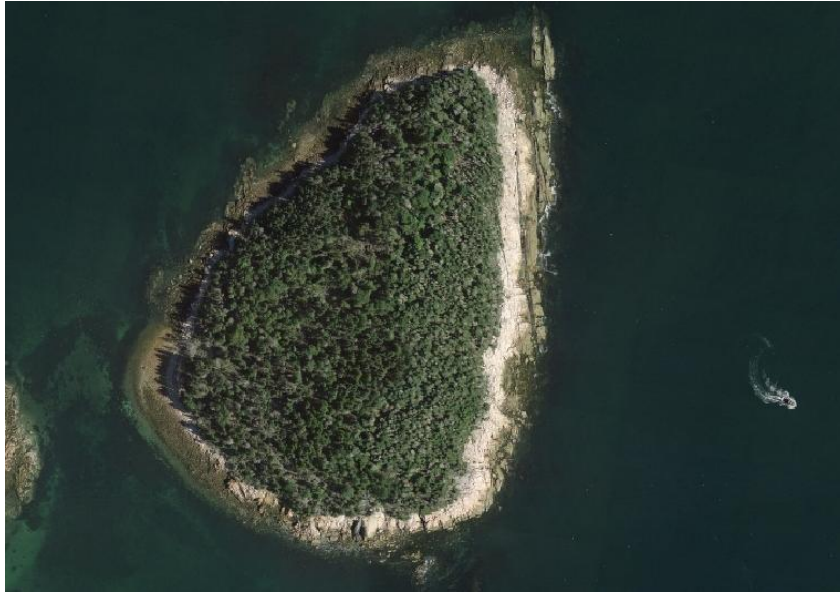
### Species of Concern:

A small number of Common terns nested on the island in the early 1990's

There is evidence of mammalian predation on nesting seabirds (2012)

Year	COEI	GBBG	HERG	BLGU
1995		72	107	50 Ad
2008		8	70 photo count	

Little Marshall Island (Ringtown)



Location: Swan's Island, Hancock County

Date of Acquisition: 11/00

CIR #	59-470
Total Acreage	14 forested
Intertidal	7.9

Habitat:

forested island dominated by mixed hardwoods, red spruce, and balsam fir

Species of Concern:

- active eagle nesting island

Eagle Nesting History: (territory 152)

- site active in 1986 and 1987, but nest had fallen by 1987 season
- site active in 1988
- occupied by two adults in 1989, but no intact nest located
- site occupied 1990 - 2006 (moved to new tree in 1999 and again in 2001, no eaglets produced in last 7 years)
- site active in 2007 - outcome unknown
- Pair produced 1 chick in 2008 & 09. Territory was active but unsuccessful in 2010

Invasives:

- Invasive survey completed in 2007
- Canada thistle and bull thistle (control efforts 2008-10). Canada thistle has been reduced by 50%

Surveys Completed:

- Aerial monitoring by MDIFW for eagle nesting
- Seabird survey completed in 2006 - no nests were found

Management Concerns:

- island is closed to public use during eagle nesting season: Feb 15- August 31

Hunting - Island is open to waterfowl hunting

## Three Bush



Location: Swan's Island Hancock County

Date of Acquisition: 9/2010

CIR #	59-980
Total Acreage	1.6
Intertidal	

Habitat:

The island has a low, flat profile. The vegetation is composed of a mix of grasses and forbs with much of the vegetation <1 meter tall. There is one, stunted spruce tree on the island. The shoreline is a dominated by cobble beaches with interspersed slabs of granite ledge.

Species of Concern:

The island has supported a small number of nesting common terns in recent years

2009: 37 pairs of COTE

Management Concerns:

- Island is closed to public use during the seabird nesting season: April 1 - August 31.

Hunting - The island is closed to hunting

## Compass Island



Location: Deer Isle, Hancock County

Date of Acquisition: 4/2010

CIR #	59-790
Total Acreage	7
Intertidal	7.9

### Habitat:

Perimeter of island is dominated by gravel / cobble beach with areas of granite ledge. Vegetation on the island is dominated by mixed grassed with a stand of spruce trees and small number of hardwoods.

- Botanical inventory planned for 2013

### Species of Concern:

- active eagle nesting island

### Eagle Nesting History: (territory 473)

- pair first documented in 2005
- Pair moved to nearby Little Sprucehead Island in 2007
- original nest 473A severely damaged in 2009

### Management Concerns:

- island is closed to public use Feb 15- August 31 if eagles are nesting, island is open after May 15 if they are not present

Hunting - Island is closed to hunting

## Little Spoon Island



Location: Isle au Haut, Knox County

Acquisition: 2/04

CIR #	63-289
Total Acreage	23 non-forested
Intertidal	28.9

## Habitat:

The shoreline is a mix of granite ledge, with boulder and cobble beaches. The interior of the island is composed of mixed grasses and forbs, with much of the vegetation <1 meter tall. There are several small wetlands or seepages scattered along the shoreline.

## Species of Concern:

- island supports nesting Common Eider, Great Black-backed Gull, Herring Gulls, Double Crested Cormorant, Great Cormorant, and Black Guillemot
- one of 10 islands in Maine with nesting Great Cormorant

## Invasive Species:

- Canada thistle, rugosa rose, bittersweet nightshade

Surveys Completed:

- Annual count of nesting Cormorants
- Botanical inventory: Mittelhauser 2004
- Seabird survey in 2007

Year	COEI	GBBG	HERG	DCCO	GRCO	BLGU
1986	100	200 ad	1100 ad	25	37	20 ad
1994				189	66	245 ad
1995		177	78	194	59	
2001					53	
2002					44	
2003				68	14	
2004				65	0	
2005				24	11	
2006				20	12	
2007	67	164	220	5		200 n
2008		120	321		12	Photo count
2011					0	
2012					30 ad	

Management Concerns:

- Island closed to public use during the seabird nesting season: April 1 - August 31

Hunting- Island is not open to hunting

## Roberts Island



(Roberts Island is large island on the right)

Location: Vinalhaven, Knox County

Date of Acquisition: 9/95

CIR #	63-174
Total Acreage	10 non-forested
Intertidal	14.7

### Habitat:

- vegetation is dominated by grasses and a few stands of shrubs
- cobble beach at north end
- high point of land is 120' above sea level

### Species of Concern:

- supports nesting Double Crested Cormorant, Common Eider, Black Guillemots, Herring Gulls, and Great Black-backed Gulls
- provides foraging habitat for migrating raptors and wintering harlequins

### Invasives:

- Garden valerian

Surveys Completed: Drury 96,97,98,99 (as part of predator control effort)

1996 - mink predation eliminated all BLGU productivity,

1997- 1 mink trapped (3 other trapped on Otter), 7 BLGU nests sites produced 4 chicks

1998 - 4 BLGU nest sites, produced 6 chicks

1999- 18 sites produced 10 BLGU chicks, 40 -60 adult BLGU observed around island

Botanical inventory conducted in 2008

Invasive species - Canada thistle, rugosa rose, bittersweet nightshade, and garden valerian (control efforts 2009-10)

Year	COEI	GBBG	HERG	BLGU	DCCO
1986	700	50	150	40	67
1996	272	10	425	6	
2003	489	11	471		
2008		26	662		Photo count

- Fall raptor migration study (Drury & Goodhue 1998)

Management Concerns:

- mink predation has significantly affected seabird production
- contract to remove mink has been awarded for several years
- Island has been proposed for consideration as Wilderness Area
- Island is closed to public use during the seabird nesting season: April 1 - August 31

Hunting - Island is not open to hunting

## Little Roberts Island



(Little Roberts is island on the left)

Location: Vinalhaven, Knox County

Date of Acquisition: 10/12/95

CIR #	63-175
Total Acreage	1 non-forested
Intertidal	5.8

### Habitat:

Island is dominated by mixed grasses and ericaceous shrubs

### Species of Concern:

- Great Cormorant nesting site (one of 10 in the state)
- island supports nesting Common Eider, Black Guillemot, Great Black-backed Gull, Herring Gull, and Great Cormorant

Botanical Inventory completed in 2008

## Surveys Completed:

Year	COEI	GBBG	HERG	BLGU	DCCO	GRCO
1986	25	5	10		138	
1994				34 ad	62	3
1995 & 96		21	23	110 ad	7	6
1997						3
1999				62-100 ad	100	
2002						21
2003					75 ad	20 ad
2004						13
2005						12
2006						13
2008 photo count		20	201		126	12
2011						14
2012						10

- Botanical inventory conducted in 2008

## Management Concerns:

- mink predation
- Island has been proposed for consideration as Wilderness Area
- Island is closed to public use during the seabird nesting season: April 1 - August 31

Hunting - Island is not open to hunting

### Seal Island



Location: Vinalhaven, Knox County

Date of Acquisition: 1972

CIR #	63-923
Total Acreage	65 non-forested
Intertidal	33.1

#### Habitat:

- Interior of island is a mix of exposed bedrock and shallow soils supporting a variety of mixed grasses and forbs. There are a few patches of woody shrubs in the interior of island. Shoreline is a mix of granite ledge, with boulder and cobble beaches.
- aerial photos available

#### Species of Concern:

- Arctic Tern, Razorbill, and Atlantic Puffin: State threatened
- Laughing Gull: State Special Concern (limited nesting & not in recent years)
- Common Tern: State Special Concern
- Roseate Tern: Federal & State Endangered (limited nesting)

Seal Island was once the largest Atlantic puffin colony in the Gulf of Maine. For over 200 years it was also a summer campsite for fisherman harvesting herring, groundfish, and lobster. The fishermen also used their nets to harvest the nesting seabirds, which lead to the demise of the colony by

1887. The island was eventually recolonized by cormorants, gulls, and terns. However, by 1953 the growing gull population had completely displaced all nesting terns. From the 1940's to the early 1960's the Navy used the island as a bombing target. The US Fish and Wildlife Service acquired the island in 1972. After six years of gull control and tern attraction using decoys and tape recordings, 20 pairs of Arctic and Common Terns nested at Seal Island in 1989. The colony has increased dramatically since 1989 and now is the largest tern colony in Maine supporting approximately 2,800 pairs of terns. Between 1984 - 1989, NAS translocated 791 puffin chicks from Newfoundland to Seal Island. Puffins first successfully bred on Seal Island in 1992. In 2012, the island supported 737 pairs of puffins and 15 pairs of razorbills. In addition to the Common and Arctic Terns; Leach's Storm Petrel, Common Eider, Great Cormorant, Great Black Backed and Herring Gulls nest on Seal Island. The island continues to be cooperatively managed by NAS and the Service.

- largest pupping area for gray seals in the state of Maine
- Great Cormorant colony represents one of 10 islands in the state supporting this species

#### Surveys Completed:

- Annual census of nesting seabirds (see file)
- Arctic Tern metapopulation study (1999 - present) - Devlin
- Atlantic Puffin metapopulation study (1999 - present) Breton
- Vegetation study (Rappaport & Wesley 1985)
- Evaluation of Livestock grazing and habitat restoration on tern nesting islands (Williamson & Schubel 1995)
- Eider & Gull Survey (Drury et al 1995)
- Fall raptor migration study - (Drury 1997)
- Fall raptor migration study (Drury & Goodhue 1998)
- Winter flights to determine status of gray seal population (Gilbert 1999)
- Botanical inventory (Mittelhauser 2004)
- Fall passerine banding effort (2007-09)

Most recent data:

Year	COTE	ARTE	ATPU	RAZO	GCCO	DCCO
2005	1,219	1,064	281	2	17	
2006	1,726	1,015	335	4	19	14
2007*	1,005	823	350	7		
2008	1,283	1,084	375	10	14	10
2009	1,581	991	425	14		
2010	1,788	1,238	500+	19		
2011	1,836	1,201	500+	13	16	
2012	1,837	959			18	

One pair of roseate terns nested in 2006, 2 pairs nested in 2010, and 1 pair nested in 2012

2007\* : Extensive gull predation early in the season caused significant egg loss in tern colony. Large number of terns abandoned the island and moved to Matinicus Rock

Invasive Species:

- Survey completed in 2003
- Rugosa rose and bittersweet nightshade

Management Concerns:

- Coordinate management activities with National Audubon Society
- Island was a former bombing range for Navy (unexploded ordnance) and therefore the Island is not open to the public. This also limits the scope of our terns surveys, as we can not survey the entire colony.
- Eagle predation on great cormorant chicks

Hunting - Island is not open to hunting

## Two Bush Island



Location: Muscle Ridge Shoals Twp, Knox Cty

Date of Acquisition: 11/99

CIR #	63-653
Total Acreage	8 non-forested
Intertidal	9.4

## Habitat:

- Treeless island, densely vegetated with timothy, yarrow, nightshade, bayberry, rugosa rose, Scotch lovage, and buttercup.
- aerial photo available

## Species of Concern:

- former tern nesting island
- island currently supports nesting Common Eider, Herring and Great Black-backed Gulls, Black Guillemots, and Double Crested Cormorant

## Surveys Completed:

Year	COEI	GBBG	HERG	DCCO	BLGU
1992	66	27	154	27	
1995/96	14	11	83	15	44 ad
2001	93	14	111	0	
2008		5	277	Photo count	

- aerial census for nesting gulls in 1996 recorded 231 nests - Schauffler

Invasive Species:

- Survey conducted in 2007
- Canada thistle and bittersweet nightshade

Management Concerns:

- Coordinate with US Coast Guard regarding lighthouse & navigational aids
- EA completed for colonial seabird management - USFWS - 1992
- Island is closed to public use during the seabird nesting season: April 1 - July 31

USFWS Owned Structures:

- USCG owns light tower (not on Historic Register). Major renovations were completed on the light tower in 2009

Hunting - Island is open to waterfowl hunting

## Crow Island



Location: Muscle Ridge Shoals Twp, Knox Cty

Date of Acquisition: 4/2010

CIR #	63-651
Total Acreage	11.7
Intertidal	10.8

#### Habitat

- Island is dominated by spruce forest, with small open meadows along the shoreline. Perimeter of island is dominated by granite ledge

#### Species of Concern:

- active eagle nesting island

#### Eagle Nesting History: (territory 191)

- territory first occupied in 1990
- territory active but unsuccessful in 2010

#### Surveys Completed:

- Aerial monitoring by MDIFW for eagle nesting

#### Management Concerns:

- island is closed to public use during eagle nesting season: Feb 15- August 31

Hunting - Island is closed to hunting

## Matinicus Rock



Location: Matinicus Isle Plantation, Knox County      Date of Acquisition: 11/99

CIR #	63-940
Total Acreage	28 non-forested
Intertidal	20.3

## Habitat:

- The island is dominated with granite out-croppings interspersed with vegetation. Dominant vegetation includes witch grass, timothy, angelica, aster, red fescue, and chickweed. The east side of island is steep and rocky with large boulders that plunge into the sea. The west side of the island tapers off gradually and contains a gravel beach.
- aerial photographs are available

## Species of Concern:

- Arctic Tern, Razorbill, and Atlantic Puffin: State threatened
- Laughing Gull: State Special Concern
- Common Tern: State Special Concern
- Manx shearwater have nested recently (only location in U.S.)

Matinicus Rock was the only puffin colony within Maine to have survived the market hunting that decimated most seabird colonies. Since 1900, Matinicus Rock has been a principal breeding site for Arctic Terns on the Maine coast. In 1901, there were approximately 500 pairs of terns, and the population had increased to approx. 3,000 pairs by 1931. By 1990, approximately 1,252 pairs of Arctic Terns nested,

but the colony has declined in recent years. In 2012, 268 Common Terns and 693 Arctic Terns nested on the island. In 2008, the Refuge initiated a large effort to reduce the number of laughing gull nests on Matinicus Rock. We have also implemented a lethal control effort for adult laughing gulls in an effort to reduce predation on terns. The laughing gull population has been reduced to 557 pairs. Manx shearwater initiated nesting on the island in 2005, and raised their first chick in 2009. This represents the first successful nesting effort for this species in the United States. They were able to raise four chicks in 2012, and 10 adult shearwater were routinely observed. In 2009, Matinicus Rock also supported the first common murre nesting attempt in over 100 years (for the state of Maine). The island continues to be cooperatively managed by NAS and the Service.

#### Surveys Completed:

- Annual census of nesting seabirds (see file)
- Vegetation study - Rappaport & Wesley 1985
- Botanical Inventory completed in 2006
- Razorbill foraging ecology study (2008-09)

Year	COTE	ARTE	ATPU	RAZO	LAGU
2007	617	1,680	312	~300	1,011
2008	298	1,494	~350	343	1,142
2009	359	1,278	350+	389	1,161
2010*	253	674	No count		958
2011	258	859	350+	390+	778
2012	268	693	No count		557

\* 1 pair of ROST nested in 2010

#### Invasive Species:

- Bittersweet nightshade and bull thistle

#### Management Concerns:

- Coordinate management activities with National Audubon Society
- Coordinate with US Coast Guard regarding lighthouse & navigational aids
- Maintain historic structures and boat ramp
- Island is closed to public use during the seabird nesting season: April 1 - August 31

USFWS Owned Structures:

- Two light towers, light keepers home, boat house, and boat ramp (Nat. Register of Historic Places)
- 2005: New boat ramp constructed
- 2010 Maintenance:
  - Lighthouse was sandblasted, primed and painted 85% of metalwork, masonry repointed, 2 glass panes replaced, door on catwalk replaced
  - House: new electrical wiring installed, fire alarms installed new front door, new roof, chimney repointed, sheetrock repaired, exterior primed and painted, replaced boards on deck
  - Moe's Tower - new door installed
- 2011: all new windows installed in house, new railing on lighthouse

Hunting- Island is open to waterfowl hunting

## Two Bush Island



Location: Matinicus Island Plt., Knox County

Date of Acquisition: 11/28/06

CIR #	63-901
Total Acreage	2
Intertidal	6.9

## Habitat:

- Island is dominated by herbaceous cover, large boulders and granite outcroppings

## Species of Concern:

- Island has supported or now supports nesting of common eiders, great black-backed gulls, herring gulls, and black guillemots

## Invasive Species:

- Invasive species inventory conducted in 2007
- Sow thistle and bittersweet nightshade

## Surveys Completed:

Year	COEI	GBBG	HERG	BLGU
1977	75	20	50	15
1995		7	0	155 ad
2008		10	165	Photo count

Hunting - Island is open to waterfowl hunting

## Metinic Island



Location: Matinicus Isle Plantation

Date of Acquisition: 6/22/95

CIR #	63-584
Total Acreage	USFWs owns 149 acres out of 300 acre island 30 acres forested , 119 acres non-forested
Intertidal	140.5

## Habitat:

- Majority of Service owned property is dominated by various grass species and shrubs, significantly affected by decades of sheep grazing. The most common species include chickweed, sheep sorrel, raspberry, and bayberry. Fencing placed around vegetation plots indicates that grazing is significantly altering the height and species composition of the vegetation on the island. For example, Kentucky bluegrass, redtop, and sweet vernal grass are common in fenced areas, while these species are uncommon in grazed areas. There is a large forested area in the center of the island, dominated by red spruce and balsam fir.

## Species of Concern:

- Bald Eagles: State threatened
- Arctic Tern: State threatened
- Common Tern: State Special Concern
- Roseate Tern: Federal & State Endangered (limited nesting)

The Service initiated a tern restoration project (decoys and sound system) on the north end of the island in 1998. In 1999 one pair of Common Terns and two pairs of Arctic Terns nested adjacent to the decoy area. Later in the season, an additional nine pairs of terns nested near the decoy area. The colony has continued to grow and by 2010, 406 pairs of COTE and 352 pairs of ARTE nested on the island. Unfortunately, a combination of a significant storm, gull predation, and potential disturbance created by our gull control measures caused the colony to abandon the island in 2012. In recent years a small number of roseate terns have nested on the island.

Common Eider, Black Guillemot, Herring Gull, Great Black Backed Gull, and Leach's Storm Petrel also nest on the island.

A Common Eider banding effort was initiated on Metinic Island in 2002.

#### Eagle Nesting Island: (territory 395)

- nest first discovered in 2003 (no eaglets produced)
- Nest fell in 2004, but pair still resident on island
- Active nesting in 2005 - 2007, but breeding efforts failed
- the nest was unoccupied in 2008, and occupied by 1 adult in 2009. The territory was active in 2010, but no chicks were produced.

#### Surveys Completed:

- Complete nesting seabird survey of USFWS property in 2012
- Annual census of nesting seabirds (see file)
- Island wide eider census 1993?
- Adaptive Management study 2008-10 to determine the best method of managing the vegetation on the island for nesting terns
- Fall banding program for passerines (2009-10) Spring banding program 2010
- Intertidal Monitoring effort 2009-10 (partner with Acadia NP)
- Bat acoustic monitoring 2009-10, bird acoustic monitoring 2010

Most recent data:

Year	COTE	ARTE	ROST	COEI	GBBG	HERG
2007	321	338	0	No Count	16	143
2008	409	303	0		4	60
2009	387	393	0		11	59
2010	406	352	0			
2011	292	192	0			
2012*	0	0	0	95	34	202

\* Complete survey of USFWS owned portion of island - also found 52 Black Guillemot and 55 Leach's storm-petrel burrows

#### Invasive Species:

- Oriental bittersweet, rugosa rose, bittersweet nightshade, Canada thistle, bull thistle, and gypsum weed
- Control efforts initiated in 2008 for nightshade, thistle, bittersweet and gypsum weed

#### Management Concerns:

- Garter snake predation on tern eggs and chicks
- LURC developed a Resource Plan for the northern portion of Metinic Island - 1992
- The island has been grazed by sheep for generations and approximately 120 sheep remain on the island. At this point in time, the Service is using the sheep to manage the vegetation for the nesting terns. In 2007, the Refuge began excluding the sheep from the entire USFWS owned portion of the island during the seabird nesting season.
- Metinic is listed by MDIFW as essential habitat for Roseate Terns
- Island is closed to public use during the eagle and seabird nesting seasons: February 15 - August 31

#### USFWS Owned Structures:

- Cabin on north end of island

Hunting- Island is not open to waterfowl hunting

## Hart Island



Location: St. George, Knox County

Date of Acquisition: 9/03

CIR #	63-833
Total Acreage	13 non-forested
Intertidal	3

## Habitat:

- Approximately 80% of the island is dominated by mixed grasses, with the other 20% supporting various species of shrubs (cherry and raspberry)

## Species of Concern:

- Island supports nesting Common Eider, Great Black-backed Gulls, and Herring Gulls

## Surveys Completed:

- Botanical inventory completed in 2010
- Seabird surveys completed in 2006

Year	COEI	GBBG	HERG
1983	300	10 ad	90 ad
1984	100 ad	25 ad	350 ad
1996		15	224
2006	57	9	358
2008*		7	414

\* Photo count

Invasive Species:

- Creeping thistle, common thistle, field sow thistle, spiny-leaved sow thistle, coltsfoot, wild radish, rugosa rose, nightshade

Management Concerns:

- Refuge is concerned about shoreline erosion
- Huge accumulation of lobster traps on the shoreline. Evidence of seabirds being trapped and killed in old traps
- Island is closed to public use during the seabird nesting season: April 1 - July 31

Hunting - Island is open to waterfowl hunting

## Franklin Island



Location: Friendship, Knox County

Date of Acquisition: 11/1/73

CIR #	63-707
Total Acreage	12
Intertidal	5.2

## Habitat:

Approximately 8 acres of red spruce forest, with 4 acres of dense raspberry thickets and mixed grasses along the western shore

## Species of Concern:

- Island once supported the largest eider nesting population in the state (eliminated by avian cholera)
- Common Eider, Herring and Great Black-backed Gulls, Black Crown Night Heron, Leach's Storm Petrel, Black Guillemot, Great Blue Heron and Osprey have nested on the island

## Surveys Completed:

Year	COEI	GBBG	HERG	BCNH
1983	1300		100	50+
1996	present	55	36	2-4
2003	336	38	74	
2008*		20	3	

\* photo count

- Botanical inventory completed in 2009

*Management Concerns:*

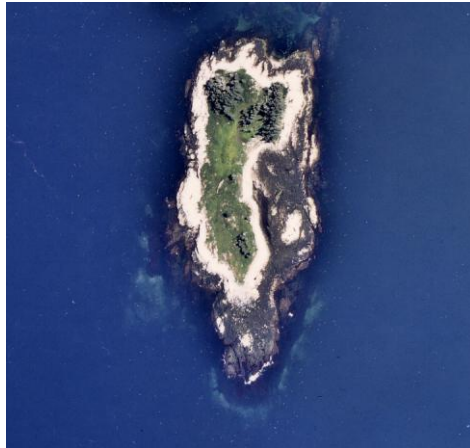
- historic lighthouse structure (owned by USCG)
- Avian cholera significantly reduced Common Eider population
- -significant boat ramp and "tent" platform constructed on island in 2001 (illegal activity)
- Island is closed to public use during the seabird nesting season: April 1 - August 31

*USFWS Owned Structures:*

- USCG owns light tower (Nat. Register of Historic Places)

Hunting - Island is open to waterfowl hunting

## Crane Island



Location: Friendship, Knox County      Date of Acquisition: 9/01

CIR #	63-705
Total Acreage	USFWS owns easement for 12 acre island
Intertidal	12

## Habitat:

-Northern 5 acres of island is dominated by red spruce, with the remaining area of island supporting a mix of grasses, forbs, and dense thicket of raspberry, bayberry, and gooseberry. Island also has patch of poison ivy.

## Species of Concern:

-island has supported nesting of osprey, Common Eider, Herring and Great Black-Backed Gulls

## Surveys Completed:

- Seabird survey completed in 2006

Year	COEI	GBBG	HERG	Osprey
1976	200	35	35	
1983	300		12	
1995 aerial photo		4	0	
2006	147	8	0	2
2008		6	0	Photo Ct

- Botanical inventory completed in 2010

Invasive Species

- Creeping thistle, common thistle, field sow thistle, spiny-leaved sow thistle, wild radish, rugosa rose, nightshade

Management Concerns:

- privately owned cabin located on north end of island
- Island is closed to public use during the seabird nesting season: April 1 - July 31

Hunting- The island is not open to hunting

## Little Thrumcap Island



(Little Thrumcap is wide section in middle of photo)

Location: South Bristol, Lincoln County



Date of Acquisition: 7/23/95

CIR #	65-267
Total Acreage	8.5 non-forested
Intertidal	6.3

## Habitat:

treeless island dominated by mixed grasses and forbs, with some small stands of shrubs. Small sand beach is located on the north side of island

## Species of Concern:

- island has supported nesting of Common Tern, Roseate Tern, Common Eider, Herring Gull, and Laughing Gull

## Surveys Completed:

Year	COTE	ARTE	ROST	LAGU	HERG	COEI
1982	175		5	75	10	
1984	200 ad	30 ad	4 ad			
1995	0		0	0	0	
1999	0		0	0		present

- Botanical inventory completed in 2010

Invasive species:

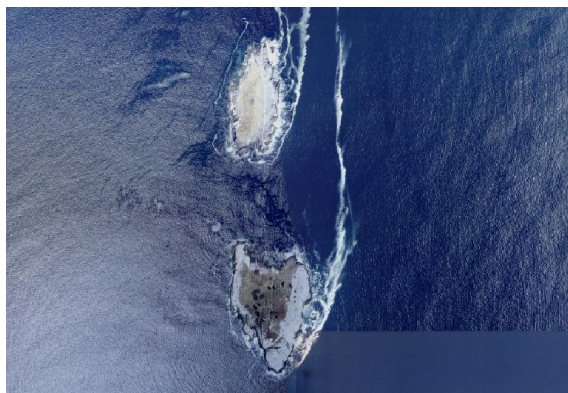
- Creeping thistle, common thistle, spiny-leaved sow thistle, wild radish, wild radish, rugosa rose, nightshade

Management Concerns:

- Refuge had cooperative agreement with Damariscotta River Association for environmental education opportunities on island (not currently active)
- Public access is allowed year-round on 60% of island, while remaining 40% is closed to public use during the seabird nesting season: April 1 - July 31

Hunting - Island is open to waterfowl hunting

# Inner White Island



(Inner White is island at top of photo)

Location: Boothbay, Lincoln County



Date of Easement: 9/17/98

CIR #	65-276
Total Acreage	USFWS owns easement on 5 acre island non-forested
Intertidal	3.8

## Habitat:

- Island sparsely vegetated (20%) with grass and forbs, with majority of island dominated by bedrock out-croppings

## Species of Concern:

- island supports nesting of Common Eider, Black Guillemot, Herring Gull, Great Black-Backed Gull, and Double Crested Cormorant

## Surveys Completed:

- Seabird survey completed (from the water) in 2006

Year	GBBG	HERG	DCCO	BLGU	COEI
1982			558	1	
1984	208	0	925		
94-95	177	78	94	5 ad	
2006	21	65	83	25 ad	100 ad
2008	64	98	170	Photo count	

*Management Concerns:*

- Island is closed to public use during the seabird nesting season: April 1 - August 31

Hunting - Island is not permitted on the island

## Outer White Island



Location: Boothbay, Lincoln County



Date of Acquisition: 5/17/95

CIR #	65-278
Total Acreage	16 non-forested
Intertidal	4.7

## Habitat:

- Island is treeless, with vegetation dominated by mixed grasses. Perimeter has high cliffs on one end

## Species of Concern:

- island supports nesting of Common Eider, Black Guillemot, Herring Gull, Great Black-Backed Gull, Black Crowned Night Heron, and Double Crested Cormorant
- Harbor seals use island for pupping

## Surveys Completed:

- Seabird survey completed in 2006
- Great horned owl observed on the island in 2006
- Botanical inventory completed in 2009

Year	COEI	GBBG	HERG	DCCO	BCNH	BLGU
1977	150	80	80			3
1995	50			25	6	15 ad
1996		65	169			
2006	270	28	42	0	0	
2008		60	81	0	Photo count	

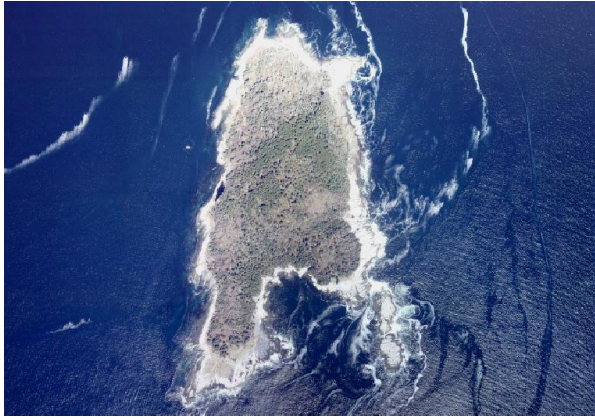
- Seals: 191 seals including 22 pups were observed in 2002 (Gilbert)  
30 harbor seals observed in 2006

Management Concerns:

- Island is closed to public use during the seabird nesting season: April 1 - August 31
- Refuge has a partnership with Damariscotta River Association and Boothbay Regional Land Trust to monitor seabirds and other migratory bird use.

Hunting - Island is open to waterfowl hunting

## Outer Heron Island



Location: Boothbay, Lincoln County

Date of Acquisition: 10/6/99

CIR #	65-279
Total Acreage	66 forested
Intertidal	19.8

### Habitat:

- Large forested island, dominated by red spruce with mixed hardwood species. Extensive felling of trees (illegal activity) has created a variety of openings within the canopy. Dense raspberry thickets have developed in these openings.

### Species of Concern:

- active bald eagle nest
- island supports nesting of Common Eider, Black Guillemot, Herring Gull, Great Black Backed Gull, and until recently a great blue heron rookery

### Eagle Nesting History: (territory 292)

- nesting first observed in 1999, nest tree fallen by 2000
- moved to new nest in 2000
- site occupied 2000 (1 eaglet), 2001 (2 eaglets), 2002-2006 (1 eaglet each year)
- site was active in 2007, but outcome is unknown

- nest fell in 2008, but new nest was constructed and pair produced 2 chicks in 2009. Territory was occupied but unsuccessful in 2010

Surveys Completed:

Year	COEI	GBBG	HERG	GBHE
1977	35	5	10	75
1983				125
1995		10	0	10
2002				0
2008*		0	8	0

\* Photo count

- Aerial monitoring by MDIFW for eagle nesting

Management Concerns:

- extensive illegal felling of trees has occurred in an effort to recover buried treasure and rare stones.
- local community has traditionally used the island for picnics and camping
- Island has been proposed for consideration as Wilderness Area
- Island is closed to visitation during eagle nesting season: February 15 - August 31

Hunting - Island is open to waterfowl hunting

## Lower Mark Island



Location: Southport, Lincoln County

Date of Easement: 9/98

CIR #	65-461
Total Acreage	USFWS owns easement on 9.5 acre island
Intertidal	8.6

Habitat:

- large stand of standing dead red spruce trees, with only 30% of island vegetated (mixed grasses and forbs). Shoreline is dominated by ledge

Species of Concern:

- island supports nesting of *Great Black-backed* and *Herring Gulls*, *Double Crested Cormorant* and *Great Blue Heron*

Eagle Nesting History: (territory 589A)

- new nesting territory discovered in 2008
- Pair produce 1 chick in 2008 and 2 chicks in 2009
- Territory was occupied but unsuccessful in 2010

Surveys Completed:

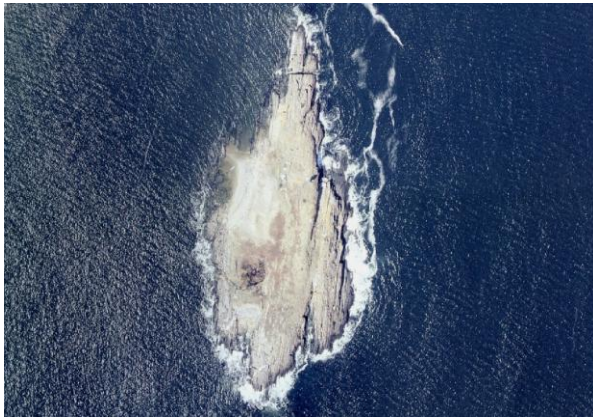
Year	DCCO	GBHE	GBBG	HERG
1994	189	10		
1995		15		
2008*	126		7	116

\*Photo count

Management Concerns:

- Island is closed to public use during the eagle nesting season: February 15 - August 31

## Pond Island



Location: Phippsburg, Sagadahoc County

Date of Acquisition: 3/73

CIR #	73-282
Total Acreage	10 non-forested
Intertidal	7.2

Habitat:

- treeless island dominated by mixed grasses
- eastern and northern sides of island features steep rock outcropping
- small sand beach on north end of island

Species of Concern:

- Common Tern: State Special Concern
- Roseate Tern: Federal & State Endangered (limited nesting)

The island is located in the mouth of the Kennebec River, and until 1937 supported a Common Tern colony. North and South Sugarloaf Islands are within a quarter of a mile from Pond Island and until 1987 supported both Roseate and Common Terns. At one point in time, North Sugarloaf was the largest Roseate colony in Maine. The terns were displaced by nesting gulls, until the restoration program was initiated in 1996. One pair of Common Terns nested in 1996, and five pairs nested in 1997, however none of these nesting attempts produced any chicks. In 1998, when the one pair of terns failed to hatch their eggs, NAS transplanted two Common Tern chicks from the nearby Jenny Island. The chicks were immediately cared for by the adults, and later fledged from the island. In 1999, Pond Island produced its first tern chick in more than 60 years, when 10 pairs of Common Terns

successfully nested. Eleven additional pairs nested later in the season, with a total of 20 chicks produced. The colony has continued to grow and in 2012, 596 pairs of Common terns nested on the island. Small numbers of Roseate terns nest on the island. Great horned owl and mammal predation continue to be a significant problem for the colony. Prior to tern restoration efforts, the island supported 125 pairs of Common Eider. The island is cooperatively managed by NAS and the Service.

#### Surveys Completed:

- annual seabird census conducted (see file)

#### Most recent data:

Year	COTE	ARTE	ROST
2007	316	3	0
2008	426	3	0
2009	438	4	0
2010	590	3	3
2011	586	0	2
2012	596	0	0

#### Management Concerns:

- coordinate seabird restoration activities with National Audubon Society
- significant owl predation on tern colony
- mammalian predators have accessed the island during the nesting season
- Coordinate with US Coast Guard concerning lighthouse and navigational aids
- Voles on island may attract owls to the island during the spring
- Island is closed to public use during the seabird nesting season: April 1 - August 31
- Sprayed herbicide to control poison ivy in 2012

#### USFWS Owned Structures

- USCG owns light tower (Nat. Register of Historic Places)
- tent platform

Hunting - Island is not open to hunting

## Ram Island



Location: Harpswell, Cumberland County

Date of Acquisition: 4/12/99

CIR #	55-605
Total Acreage	10 non-forested
Intertidal	4

Habitat: Vegetation on the island is dominated by mixed grasses with several stands of shrubs (raspberry and cherry) on the north end of island

## Species of Concern:

- Island supports nesting of Common Tern, Common Eider, Great Black-Backed and Herring gulls, Double Crested Cormorant, and Black Crowned Night Heron

## Surveys Completed:

Year	COTE	COEI	GBBG	HERG	DCCO	BCNH
1980		60	10	70		
1989						25
1991	67					
1992	53					
1995	0		25	295		
2004	0	214	47	184	162	0
2008	Photo count		14	289	136	

- Botanical inventory completed in 2010

Invasive Species:

- Common thistle, spiny-leaved sow thistle, wild radish, wild radish, rugosa rose, nightshade

Management Concerns:

- Island is closed to public use during the seabird nesting season: April 1 - July 31
- 

Hunting - Island is open to waterfowl hunting

## Upper Flag Island



Location: Harpswell, Cumberland County

Date of Acquisition: 6/17/98

CIR #	55-415
Total Acreage	30 primarily non-forested
Intertidal	7.2

## Habitat:

- Island is generally flat on the north side with tall cliffs (up to 10 meters) on the southern and western shorelines. Island vegetation is composed primarily of dense, low, woody shrubs with scattered patches of trees and low vegetation. The shrub community is dominated by bayberry, winterberry, chokeberry, and choke-cherry. A variety of grasses including: common hairgrass and Rhode Island bentgrass were common. Island also contains small sandy beach and a freshwater wetland on the northern end.

## Species of Concern:

- island supports nesting of Common Eider, Herring and Great Black-Backed Gulls
- Pitseed Goosefoot (*Chenopodium berlandieri* var. *macrocalycium*): special concern

Invasive Species:

- Oriental Bittersweet, Canada thistle, Rugosa rose, Bittersweet nightshade.
- Bittersweet control efforts initiated in 2009

Surveys Completed:

Year	COEI	GBBG	HERG
1982	500	40	200
1984	300	10	25
1993	25		
1998	110		

- 2001: botanical and small mammal inventory of island (Mittelhauser and Morrison)

Management Concerns:

- Island is closed to public use during the seabird nesting season: April 1 - July 31
- Island has traditionally been used by recreational beach-goers. Community outreach needed

Hunting - Island is open to waterfowl hunting

## Duck Island



Location: Kittery, York County

Date of Acquisition: 9/03

CIR #	81-181
Total Acreage	9
Intertidal	5

## Habitat:

- Vegetation is dominated by mixed grasses, interspersed with rock outcroppings. Island has a small fresh water pond.
- Includes numerous inter-tidal ledges around island

## Species of Concern:

- Island supports nesting Common Eider, Herring and Great Black-Backed Gulls, and Double Crested Cormorants
- Glossy Ibis and Great Egrets forage on the island. Canada geese also nest on the island
- Harbor and gray seal haul-out site

## Surveys Completed:

Year	COEI	GBBG	HERG	DCCO
1984		549		1,077
1994				916
1995	50	301 ad	69 ad	743
2005	52 ad	150 ad	288 ad	1388 ad

Management Concerns:

- Island was used as a bombing target by the military and has unexploded ordnance on the island and in adjacent waters. ACOE survey of ordnance completed in 2007
- No anchor zone delineated around island on charts (due to ordnance)
- Island is closed to public use year round

Hunting - Island is not open to hunting

## Smuttynose Island



Location: Kittery, York County

Date of Easement: 3/02

CIR #	81-182
Total Acreage	USFWS owns easement on 40 acre island Non-forested
Intertidal	10

## Habitat:

- Approximately 20 acres of the island is dominated by shrubs, while the other half is covered with grass, forbs, and shrubs

## Species of Concern:

- island has supported nesting by Black Guillemot, Canada Geese, Common Eider, Herring and Great Black-backed Gulls

## Surveys Completed:

Year	COEI	GBBG	HERG	BLGU	COTE
1984	19	912	1,442		30 ad
1995	15 ad	1,030	387	3	
2005	69 ad	667 ad	141 ad	4 ad	

- GPS data collected for all structures on the island
- Botanical Inventory conducted in 2006 (Nichols)

Invasive species:

- inventory conducted in 2006
- Oriental bittersweet, bittersweet nightshade, Canada thistle, purple loosestrife, rugosa rose, and common buckthorn
- Biological control efforts (beetles) were implemented in 2008 to control the loosestrife

Management Concerns:

- numerous historic structures
- extensive public visitation to island (provided by Starr Island Corp), with trail running through gull nesting area
- seasonal care-takers present on island
- island accessible from adjacent islands by inter-tidal bar
- need to coordinate with researchers at Shoals Marine Lab
- Raccoons eliminated all gull nesting efforts in 2004, 11 animals were removed from the complex of islands
- extensive archeological dig conducted in recent years
- Island is closed to public use during the seabird nesting season: April 1 - August 31

## Malaga Island



(Malaga Island is small outcropping attached to Smuttynose Island)

Location: Kittery, York County

Date of Easement: 3/02

CIR #	81-193
Total Acreage	USFWS owns easement on 3 acre island Non-forested
Intertidal	7

Habitat:

- island is non-forested with grasses and low shrubs

Species of Concern:

Surveys Completed:

Management Concerns:

## Machias Seal Island



Location: 12 miles SE of Cutler, Washington County

Date of Acquisition: ownership of island is disputed between United States and Canada

Total Acreage	USFWS manages 15 acre island under cooperative agreement with MDIFW
Intertidal	7

## Habitat:

- Vegetation is dominated by a variety of herbaceous species including Irises, Asters, Meadow Rue, Angelica, Canada bluejoint, and other grasses. Extensive boulder habitat around island provides nesting habitat for alcids.

## Species of Concern:

- Arctic Tern, Razorbill, and Atlantic Puffin: State threatened
- Common Tern: State Special Concern
- Common Murre
- Supports the largest alcid colony along the Maine coast
- recently supported the largest tern colony along coast of Maine
- island also supports nesting Leach's Storm-Petrel and Common Eider
- Machias Seal Island is the only known breeding colony of Common Murre in the Gulf of Maine (breeding first documented in 2003)
- Gannets nested for the first time on the island in 2012 (only recent record in Gulf of Maine)

## Surveys &amp; Research Completed:

- University of New Brunswick (Atlantic Co-operative Wildlife Ecology Research Network) maintains research crew on the island
- multiple Grad Student projects completed on seabirds
- terns census completed every other year
- Summary of Historical Information on the Seabirds of MSI (MacKinnon & Smith 1985)
- Arctic Tern Metapopulation study (1999 - present) - Devlin
- Use of Radio Telemetry to Census Breeding Razorbills - Grecian
- Stable isotopes and mercury in seabirds (2005 & 2006)- Bond
- other research topics have focused on the use of seabirds as indicators of changes in the availability of commercial fisheries of herring, identification of foraging areas, and time budgeting behavior of Arctic Terns

## Most recent data:

Year	COTE	ARTE	ATPU	RAZO	COMU
2003	1329	1994	3500+	560	45+
2004	1006	2158	No count		148+
2006*	213	904		900 ad	250 ad
2007-2010	0	0	No count		
2011	0	0	6,563		
2012	0	0		1740pr	

- Excessive gull control in 2006 resulted in significant reduction of nests during GOMSWG census. Tern colony completely abandoned in late June.
- In 2007 the entire tern colony abandoned the island

## Management Concerns:

- ownership disputed between United States and Canada
- coordinate with Canadian Wildlife Service and University of New Brunswick
- potential disturbance from eco-tourists which land on island throughout season (permit system limits landings)
- CWS stations seasonal warden / lighthouse keeper on the island
- Laughing Gulls recently began nesting on the island, and given their rate of population increase on other islands it may be advisable to prohibit them from nesting on MSI in future years